

understood that the invention is not limited thereto, but may be otherwise variously embodied and practiced within the scope of the following claims.

I claim:

1. A vacuum process apparatus for processing at least one workpiece, comprising a chamber with[:] at least two openings defining respective opening areas [for one of treating and handling said at least one workpiece thereat]; and a transport device[, comprising] having a drive shaft rotatable around a rotational axis of said drive shaft; at least two conveyors [arranged at said transport device] for at least one workpiece each[, said transport device comprising], and a transport arm for each conveyor, [projecting from] operatively associated with said drive shaft; said arms being operatively coupled to said conveyors to move said conveyors independently of each other relative to said drive shaft. ✓

2. The apparatus of claim 1, said openings defining an opening area each, with normals on said opening areas being warped with respect to said rotational axis.

3. The apparatus of claim 1, wherein said conveyors are movable at least one of parallel to said drive shaft and of normally with respect to said drive shaft. ✓ 32

4. The apparatus of claim 1, wherein said conveyors, once positioned adjacent one of said openings by rotation of said transport device, are movable towards and from said opening in a normal direction of said opening areas.

5. The apparatus of claim 1, wherein rotation of said transport device around said rotational axis substantially define a cone shaped trajectory surface with a cone opening angle with respect to said rotational axis of not more than 90°.

6. The apparatus of claim 5, wherein each of said openings defines an opening area, with normals on said opening areas pointing in a direction of respective generatrix of said cone-shaped trajectory surface.

7. The apparatus of claim 6, wherein said openings are arranged along a circle cut by said cone-shaped trajectory surface by a geometric plane arranged perpendicularly to said rotational axis.

8. The apparatus of claim 1, said transport device residing within said chamber further comprising at least one of a load lock chamber and of a station for treating said workpiece communicating by one of said openings with said chamber.

9. The apparatus of claim 8, further comprising gas inlet means and pumping means at least at one of said station and chambers.

10. The apparatus of claim 1, wherein at least one of said conveyors comprise a seal member for sealingly closing one of said openings when said at least one conveyor is rotated adjacent to said opening by said transport device.

11. The apparatus of claim 10, wherein said seal member is formed by a conveyor plate for said workpiece.

12. The apparatus of claim 1, wherein each said conveyor comprises a conveyor plate with a projecting positioning pin for positioning a disk shaped workpiece with a central bore.

13. The apparatus of claim 12, further comprising holding means for said workpiece on said conveyor plate.

14. The apparatus of claim 13, said holding means being formed by spring means acting radially with respect to said pin.

15. The apparatus of claim 1, said workpiece being one of compact disk workpieces and of magneto-optical storage disk workpieces.

16. A vacuum chamber for processing at least one workpiece, comprising at least two openings defining respective opening areas [for treating or handling said at least one workpiece thereat]; a transport device with a drive shaft for rotating ~~said transport device~~ around a rotational axis of said drive shaft; at least two conveyors [arranged at said transport device for the workpiece thereat, said transport device further comprising], and a transport arm for each conveyor [projecting from] operatively associated with said drive shaft[; said arms] and each being operatively coupled to one of said conveyors to move said conveyors independently of each other relative to said drive shaft.

17. The chamber of claim 16, wherein each of said openings defines an opening area with, normals on said opening areas being warped with respect to said rotational axis.

18. The chamber of claim 16, wherein said conveyors are movable at least one of parallel to said rotational axis and of normally with respect to said rotational axis.

19. The chamber of claim 16, wherein said conveyors, once positioned adjacent one of said openings by rotation of said transport device, are movable towards and from said opening in a normal direction of said opening areas.

20. The chamber of claim 16, wherein rotation of said transport device around said rotational axis substantially defines a cone-shaped trajectory surface with a cone opening angle with respect to said rotational axis of not more than 90°.

21. The chamber of claim 20, wherein each of said openings define an opening area with, normals on said opening areas pointing in a direction of respective generatrix of said cone-shaped trajectory surface.

22. The chamber of claim 21, wherein said openings are arranged along a circle intersected by said cone-shaped trajectory surface by a geometric plane arranged perpendicular to said rotational axis.

23. The chamber of claim 16, wherein at least one of said conveyors comprise a seal member for sealingly closing one of said openings when said at least one conveyor is rotated adjacent to said opening by said transport device.

24. The chamber of claim 23, wherein said seal member is formed by a conveyor plate for said at least one workpiece.

25. The chamber of claim 16, wherein said conveyors comprises a conveyor plate with a projecting positioning pin for positioning a disk shaped workpiece with a central bore.

26. The chamber of claim 25, further comprising holding means for said at least one workpiece on said conveyor plate.

27. The chamber of claim 16, wherein said holding means is formed by spring means acting radially with respect to said pin.

28. The chamber of claim 16, wherein said conveyors are configured to hold workpieces in the form of one of compact disk workpieces and of magneto-optical storage disk workpieces.

29. The chamber of claim 16, wherein said conveyors comprise a support plate with an upstanding pin; spring loaded holding portions around said pin being biased radially outwardly with respect to said pin, and further comprising holding portions projecting outwardly with respect to said pin and being biased slightly outside the surface of said pin.

30. A vacuum chamber with at least two openings and a workpiece transport arrangement with which at least one workpiece within the chamber is selectively brought into a position adjacent to one of said openings, whereby ^(A) the transport arrangement is provided within the chamber rotatably around a rotational axis and carries at least two members for holding a workpiece each, a rotation drive is provided to rotate said workpiece transport arrangement, and at least two displacement drives are provided for displacing said at least one workpiece each with respect to said transport arrangement whereby said members are (selectively brought into a position aligned with one of said openings by rotation of said transport arrangement and from such position a workpiece is displaceable towards and from said opening by one of said displacement drives, and said member and said displacement drives are operatively mounted on said transport arrangement rotation drive.

31. A vacuum chamber with at least two openings and a workpiece transport arrangement with which at least one workpiece within the chamber is (selectively brought into a position adjacent to one of said openings, whereby the transport arrangement is provided within the chamber rotatably around a rotational axis and carries at least two members for holding a workpiece each, a rotation drive is provided

no drive shaft
on projected arms
T. drives are mounted
to rotation drive B

A and B
A can be & separate
pieces connected together
by a junction means

to rotate said workpiece transport arrangement, and at least two displacement drives are provided for displacing said at least one workpiece each with respect to said transport arrangement whereby said members are selectively brought into a position aligned with one of said openings by rotation of said transport arrangement and from such position a workpiece is displaceable towards and from said opening by one of said displacement drives in a direction with a radial component relative to said rotational axis, and said displacement drives are operable independently of each other.

32. A vacuum chamber, comprising at least two openings defining respective opening areas; and a transport device operatively arranged relative to the at least two openings and including a member movable relative to a rotational axis thereof, at least two conveyors for transporting at least one workpiece each, and at least one linear drive for each of said at least two conveyors being operatively coupled between said movable member and a respective conveyor of said at least two conveyors and configured to linearly move said respective conveyors relative to said movable member independently from other conveyors of said at least two conveyors.

no B - drive shaft

33. A vacuum chamber with at least two openings and a workpiece transport arrangement with which at

least one workpiece within the chamber is selectively brought into a position adjacent to one of said openings, whereby the transport arrangement is provided within the chamber rotatably around a rotational axis and carries at least one member for holding a workpiece, a rotation drive is provided to rotate said workpiece transport arrangement, and a sealed displacement drive is arranged between said transport arrangement and said at least one member for displacing a workpiece with respect to said transport arrangement, whereby said member is selectively brought into a position aligned with one of said openings by rotation of said transport arrangement and from such position a workpiece is displaceable towards and from said opening by said displacement drive, and said member and said displacement drive are operatively mounted relative to said transport arrangement rotation drive.

34. A method of processing at least one workpiece, comprising the steps of

rotating a transport device member around a rotational axis to bring the at least one workpiece adjacent an opening in a vacuum chamber having at least two openings, and

moving at least two conveyors with at least one movement component radial relative to said rotational axis, independently of each other relative to the transport device member so as

selectively to move the at
least one workpiece towards
and away from the adjacent
opening.